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PATENT AND TECHNICAL TRANSLATION

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April 26, 2005

DECLARATION

The undersigned, Olaf Bexhoeft, hereby states that he is well acquainted with both the English and German languages and that the attached is a true translation to the best of his knowledge and ability of the German text of the specification and amended pages 1, 20 and 23 to 25 of PCT/DE2003/003529, filed on 10/23/2003, and published on 05/13/2004 under No. WO 2004/039591 A1.

The undersigned further declares that the above statement is true; and further, that this statement was made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or document or any patent resulting therefrom.

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4/PRTS
10/532866
JC14 Rec'd PCT/PTO 26 APR 2005

Specification

Method for the Production of a Rotating Member and Rotating Member of a Printing Press

The invention relates to a method for producing a rotating body, and to a rotating body of a printing press in accordance with the preambles of claims 1, 3, 9, 12, 20 or 29.

A device for fastening a dressing on a printing group cylinder is known from DE 196 11 642 C2, wherein a prefabricated strip is placed into a groove formed in the surface area of the cylinder and is welded together with it at joining surfaces facing each other in the circumferential direction of the cylinder, wherein the strip completely fills the groove, and bores conducting suction air and a slit-shaped bracing pit for holding a dressing arranged on an angled-off end are embodied in the strip.

The object of the invention is based on providing a method for producing a rotating body, and a rotating body of a printing press.

In accordance with the invention, this object is attained by means of the characteristics of claims 1, 3, 9, 12, 20 or 29.

The advantages which can be gained by means of the invention consist in particular in that, for forming a bracing channel or a flow channel it is possible to cut a groove into the surface of the barrel of the base body, for example by means of milling, which is cost-effective for the production. Expensive deep hole drilling is not necessary. A profiled body covering and delimiting the bracing channel

or the flow channel toward the shell face or the surface is introduced into the groove and is connected with the barrel or the base body by being incorporated into the material. Electron beam welding or laser welding, which is preferred for making the connection, permits heating the barrel or the base body in a locally very narrowly limited welding zone, so that the barrel or the base body remains free of tension and free of warping in spite of the introduction of heat. Furthermore, fastening of the profiled body on the barrel or the base body by screws or similar connecting elements, and therefore also the sealing of the heads of these fastening elements in the bracing channel or the flow channel, as well as sealing of a passage hole in the profiled body for the attachment of such connecting elements, can also be avoided. It is also advantageous that a barrel or base body made of a less corrosion-resistant material can be protected against corrosion by welding a cover, for example plate-shaped, made of a more corrosion-resistant material, onto it. In the same way the shell face of the barrel or the surface of the base body can also be designed to be more wear-resistant. By their advantageous placement in the barrel or base body, the flow channels make possible an efficient temperature control.

Exemplary embodiments of the invention are represented in the drawings and will be described in greater detail in what follows.

Shown are, each in partial section, in:

Fig. 1, a profiled body introduced into the barrel of the rotating body, with a bracing channel extending in it,

Fig. 2, a rotating body with a profiled body welded to the barrel,

Fig. 3, a rotating body with a profiled body welded to the barrel and with a protective layer applied to the barrel,

Fig. 4, a rotating body with a cover applied to the base body,

Fig. 5, a rotating body with a cover applied to the base body, and with flow channels formed in the base body in addition to the bracing channel,

Fig. 6, a perspective plan view of a rotating body, with flow channels formed in the barrel or in the base body, wherein the flow channels and the bracing channel are each covered by a profiled body on the shell face of the barrel, or on the surface of the base body.

If, for example, the rotating body 01 is designed as a forme cylinder 01 or a transfer cylinder 01 of a printing group, this cylinder 01 can be covered in the direction of its circumference U with, for example, one dressing 03 or two dressings 03, and axially, i.e. over its length, for example with up to six dressings 03. In connection with a forme cylinder 01, the dressings 03 are mostly embodied as plate-shaped printing formes 03. In connection with a transfer cylinder 01, the dressings 03 are preferably rubber printing blankets 03 applied to a support plate. As a rule a plate-shaped printing forme 03, or a support plate for a rubber printing blanket is made of a flexible, but otherwise dimensionally-stable material, for example an aluminum alloy.

The printing group in which the previously described cylinder 01 is employed can be designed, for example, as a 9-cylinder satellite printing unit, in which four pairs, each consisting of a forme cylinder 01 and a transfer cylinder 01, are arranged around a common counter-pressure cylinder,

wherein for example at least the forme cylinders 01 each can have the characteristics of the attainment of the object described here. Arrangements are advantageous, in particular for printing newspapers, in which a forme cylinder 01 is covered in its axial direction, i.e. side-by-side, with up to six plate-shaped printing formes 03, and along its circumference either with one plate-shaped printing forme 03 or, one behind the other, with two plate-shaped printing formes 03. Such a forme cylinder 01 rolls off on a transfer cylinder 01 which, for example, is covered axially with up to three side-by-side arranged rubber printing blankets 03, wherein each rubber printing blanket 03 stretches over the full circumference of the transfer cylinder 01. Thus, the rubber printing blankets 03 have twice the width and length of the plate-shaped printing formes 03. In this case the forme cylinder 01 and the transfer cylinder 01 preferably have the same geometric dimensions in respect to their axial length and their circumference. For example, a rotating body 01 embodied as a cylinder 01 has a diameter of 140 mm to 420 mm, for example, preferably between 280 mm and 340 mm. The axial length of the barrel 02 of the cylinder 01 lies, for example, in the range of 500 mm to 2400 mm, preferably between 1200 mm and 1700 mm. Alternatively to the design of the rotating body 01 as a cylinder 01, it can also be designed as a roller 01, which preferably guides a material to be imprinted, for example paper.

A partial section of a barrel 02 of the rotating body 01 is represented in Fig. 1, wherein a bracing channel 06 extends in the axial direction of the barrel 02. The bracing channel 06 is delimited, at least in the direction of a shell

face 07 of the barrel 02, by at least one profiled body 04 introduced into the barrel 02. A dressing 03, for example a flexible plate-shaped printing forme 03, is fastened on the shell face 07 of the barrel 02 in that legs 08, 09, beveled off the ends of the dressing 03, are introduced into the bracing channel 06, which has an opening 11 directed toward the shell face 07 of the barrel 02, and are there substantially placed against the walls 12, 13 of the opening 11 which are close to the shell face. In this case the bracing channel 06 can have various cross-sectional geometric shapes without interfering with the invention.

Without limiting the invention to the following simplified representation, the description of the invention is provided here for the sake of simplicity in such a way as if only a single dressing 03 looping around the barrel 02 were to be fastened on the barrel 02. For one skilled in the art it is easily understandable that several dressings 03 could be fastened on the barrel 02 in its axial direction, as well as in its circumferential direction, wherein then, in case of several dressings 03 in the circumferential direction, several bracing channels 06 would also have to be provided.

Viewed in the production direction P of the rotating body 01, the dressing 03 to be fastened on the barrel 02 has a leading end 16 and a trailing end 17, with respective beveled off legs 08, 09. Also viewed in the production direction P of the rotating body 01, the opening 11 of the bracing channel 06 has a front edge 18, from which a wall 12 extends in the direction toward the bracing channel 06, as well as a rear edge 19, from which a wall 13 also extends in

the direction toward the bracing channel 06. The opening 11 is designed to be elongated and narrow, and therefore slit-shaped, in the shell face 07 of the barrel 02, wherein the slit width S is short in comparison with the depth t of the bracing channel 06 which, for example can be 28 mm to 35 mm, preferably 30 mm, and is dimensioned in such a way that a leg 08 at the leading end 16 of a dressing 03, and a leg 09 at the trailing end 17 of the same dressing 03 or - with several dressings 03 fastened in the circumferential direction of the rotating body 01 - of an identical dressing 03 can be arranged in the opening 11 one behind the other. Slit widths S of less than 5 mm, preferably in the range of 1 mm to 3 mm, are advantageous. Therefore the ratio of the depth t of the bracing channel 06 and the slit width S preferably is approximately 10:1 to 15:1. The opening 11 can extend completely, or only partially, over the length of the barrel 02.

An acute opening angle α, which lies between 30° and 60°, preferably at 45°, is formed between the wall 12 extending from the front edge 18 in the direction toward the bracing channel 06 and an imaginary tangent line T resting on the opening 11 in the shell face 07 of the rotating body 01. Thus, the slit width S of the opening 11 tapers in the direction toward the shell face 07 of the rotating body 01 and increases in the direction toward the bracing channel 06. The leg 08 at the leading end 16 of the dressing 03 can be suspended from the front edge 18 of the opening 11, so that this leg 08 rests, preferably positively connected, against the wall 12 extending from the front edge 18 to the bracing channel 06. In the example represented in Fig. 1, the wall

13 at the rear edge 19 of the opening 11 drops approximately vertically in the direction toward the bracing channel 06. However, the wall 13 can be slightly inclined, so that the opening 11 widens in the direction toward the bracing channel 06. An angle ß, which results as the opening angle between the wall 13 extending from the rear edge 19 to the bracing channel 06 and the already mentioned tangent line T resting on the opening 11 in the shell face 07 of the rotating body 01, for example lies within the range of 85° and 95° and preferably is 90°.

As a rule, the bracing channel 06 extends in the axial direction of the rotating body 01. A groove 21, which for example has been cut into the bottom 14 of the bracing channel 06 or of the profiled body 04, is open toward the bracing channel 06, and into which a rigid, preferably plate-shaped holding means 22 has been placed - preferably loosely - and is pivotably seated, is preferably seated approximately diametrically opposite the slit-shaped opening 11. For example, the holding means 22 can be a metallic strip 22 extending longitudinally in the bracing channel 11. Accordingly, the groove 24 is a seating point and support point of the holding means 22 designed as a lever 22. For being able to pivot the holding means 22 in the groove 21, the width B of the groove 21 is embodied to be greater than the thickness D of the holding means 22. The holding means 22 is designed in such a way that it has a first, upper end 23, which can be placed against one of the two walls 12 or 13 of the opening 11, and a second, lower end 24 located opposite the opening 11, wherein this lower end 24 is supported in the groove 11.

A preferably prestressed spring 26 is supported by its one end on the profiled body 04 and by its other end on the holding means 22, preferably close to the first, upper end 23 of the holding means 23, so that the holding means 22 designed as a lever 22 forms as long as possible a lever arm from its seating point in the groove 21 to the spring 26. An actuating means 27 counteracts, when needed, the contact pressure exerted by the spring 26 via the holding means 22 on the wall 13 extending from the rear edge 19 of the opening 11, in order to release a clamping on the wall 13 provided by the holding means 22 when the actuating means 27 is operated. The actuating means 27 preferably is a hose 27 extending in the longitudinal direction of the bracing channel 06, which can be charged with a pressure medium, for example compressed air. Accordingly, all components required for maintaining a dressing 03 on the shell face 07 of the barrel 02 are arranged and seated in the bracing channel 06.

The explanations provided here regarding the design and employment of the rotating body 01 are intended to apply in a corresponding manner to all embodiments hereinafter described.

In a first embodiment, represented in Fig. 2, for producing the rotating body 01, at least one profiled body 04 is inserted into the barrel 02 of the latter in such a way that the profiled body 04 spatially delimits a bracing channel 06 at least on the shell face 07. The introduction of the profiled body 04 into the barrel 02 is preferably provided by material-to-material contact, in particular by means of a welding process, for example by means of electron beam welding or laser welding. As an alternative to a

welding method it would also be possible to apply hard soldering in a vacuum, wherein a soldering paste applied to the joining surface is spread as a result of capillary action and in the end results in a very solid soldered connecting, even under shearing stress, if the complete rotating body 01 is heated in a vacuum. Independently of the connecting techniques being used in what follows, for introducing the profiled body 04 into the rotating body 01, advantageously the profiled body 02 is inserted into a groove 31, preferably machined into the shell face 07 of the barrel 02. If the profiled body 04 is embodied in a block shape, the width W31 of the groove 31 and the width of the profiled body 04 are matched to each other, preferably in a clearance fit or a transition fit, so they are joined easily. The profiled body 04 extending in the axial direction of the rotating body 01 preferably has a strip-like shape and can be embodied in one or in several pieces. As illustrated in Figs. 2 and 3, it is not absolutely necessary, for example, that the profiled body 04 forms a bottom in the bracing channel 06. As an alternative to a profiled body 04 as a molded piece, the profiled body 04 can be formed at least on or near the shell face 07 of the barrel 02 in a welding-on process by applying a material. A corrosion-resistant special steel is particularly suitable as the material for a profiled body 04 produced by means of welding techniques. The holding means 22 arranged in the bracing channel 06, namely the spring 26 and the actuating means 27, are no longer represented in Fig. 2 and the subsequent drawing figures for reasons of clarity. Reference is made to Fig. 1 for details in this matter. The width W31 of the groove 31 can be for example 10 mm to 50 mm,

preferably lie between 12 mm and 30 mm, at least at the shell face 07.

As an access to the bracing channel 06, the profiled body 04 has for example a slit-shaped opening 11 in its side facing the shell face 07, i.e. at its front end 34. Alternatively, two profiled bodies 04 can be provided, which by their spacing in the axial direction of the rotating body 01 form a slit-shaped opening 11, at least at the shell face 07. Preferably the cross section of the bracing channel 06 can be round or embodied to be rectangular. The bracing channel 06 preferably extends in the axial direction of the rotating body 01, The profiled body 04 can be embodied in a strip shape and, in a sectional view transversely to the axial direction of the rotating body 01, substantially angular.

Welding zones 32, which have only a very narrow width in the direction of the circumference of the barrel 02, but which project into the barrel 02 over a large portion of the structural depth of the profiled body 04, for example, are located at the lateral joining surfaces between the profiled body 04 inserted into the groove 31 and the barrel 02. By bundling the radiation emitted by their respective energy sources, the suggested welding processes make possible a locally tightly limited heating of the barrel 02 with a large depth effect. Thus, with electron beam welding the width of each welding zone 32 is, for example 1 mm in connection with a welding depth of 5 mm directed into the barrel 02, is for example 2 mm in connection with a welding depth of 20 mm, and is for example 3 mm in connection with a welding depth of 40 mm. With laser welding the welding zones 32 are somewhat

wider, so that the width and depth of each welding zone 32 have a ratio of approximately 1:5. For the application here, welding depths of 15 mm to 20 mm could be sufficient. The maximally required depth, for example, lies at 50 mm.

It is advantageous for welding to embody at least one area of the joining surfaces close to the shell face 07 between the barrel 02 and the profiled body 04 arranged in the groove 31 with smooth walls and without a curvature in a sectional view transversely to the axial direction of the rotating body 01. For example, the welding zones 32 can extend approximately vertically in respect to the shell face 07 of the barrel 02 and can therefore be arranged approximately radially in respect to the rotating body 01, or in respect to the shell face 07 of the barrel 02 they have a purposely selected angle of inclination, which is a function of the geometry of the profiled body 04. In any case, the welding zones 32 enter the barrel 02 in straight lines corresponding to the beam path from the energy source. The welding zones 32 need not necessarily extend over the entire length of the barrel 02, but can instead be formed as points or in several short sections, which are spaced apart from each other, of only a few millimeters. The welded sections can be for example 5 mm to 25 mm long, preferably approximately 10 mm long and can be repeated at distances of 20 mm to 50 mm, preferably 30 mm to 40 mm, in the axial direction of the rotating body 01. Alternatively to the preferred welding process, in particular the electron beam welding method or the laser beam method, it is also possible to glue the profiled body 04 into the barrel 02. Even arched

joining surfaces between the barrel 02 and the profiled body 04 pose no problems in case of gluing.

The profiled body 04 and the barrel 02 can completely be made of different materials. Thus, a corrosion-resistant material is preferably selected for the profiled body 04, for example alloyed corrosion-proof steel or aluminum bronze, while the barrel 02 can, for example, consist of unalloyed C22 steel, and therefore of a material which is more susceptible to corrosion. The embodiment in particular of the rotating body 01 of different corrosion behavior leads to a second embodiment wherein it can be advantageous to place the at least one profiled body into the groove 31 with a slight protrusion a, or to form it on the groove 31 with a slight protrusion a, wherein the protrusion a is measured in a few tenths of millimeters so that the profile body 04 inserted into the groove 31 slightly protrudes past the shell face 07 of the barrel 02 by the protrusion a (Fig. 3). Advantageously a corrosion-proof protective layer 33 is applied to the shell face 07 of the barrel 02 which, for example, can be made of inexpensive unalloyed C22 steel, wherein the protective layer 33 can be, for example, a coating on the basis of nickel or iron-austenite-cobalt, which can be applied by means of a high-speed flame-spraying method, or a coating of titanium oxide, which can be applied by means of a flame-spraying method. This protective layer 33 can also completely or partially cover the front face 34 of the profiled body oriented toward the shell face 07 of the barrel 02. Following the application of the protective layer 33, the entire coated shell face 07 of the barrel 02 is

preferably re-surfaced or ground, because of which the protective coating 33 is removed completely or partially from the front face 34 of the profiled body 04 and a continuous smooth transition from the profiled body 04 to the shell face 07 of the barrel 02 is assured. With this embodiment of the rotating body 01 a dressing 03 applied to the barrel 02 comes into contact only with corrosion-proof surfaces, because the shell face 07 of the barrel 02, as well as the profiled body 04, are both embodied to be corrosion-proof, at least at the contact faces with the dressing 03.

A third embodiment of the rotating body 01 is illustrated in Fig. 4, wherein a covering 36 has been applied to a surface 29 of a base body 28 of the barrel 02. The base body 28, together with its surface 29, can be made of a more corrosion-prone, low-cost material, for example unalloyed C22 steel. In contrast thereto, the covering 36 consists of a more corrosion-resistant material, for example alloyed, corrosion-proof steel, and is applied by material-to-material contact to the surface 29 of the base body 28, preferably welded on, in particular by electron beam welding or laser welding. Because of their depth effects, these preferred welding processes make it possible to perform welding through the covering 36, whose radial material thickness is only a few millimeters, preferably 10 mm at most, and in this way to provide a permanent solid connection of the covering 36 with the surface 29 of the base body 28. Welding zones 32 extending into the base body 28, which are represented in a simplified manner in Figs. 4 to 6 by lines, are embodied to be preferably equidistant along the circumference of the barrel 02, or its base body 28.

The bracing channel 06, which preferably extends in the direction of the length of the barrel 02 can - as represented in Fig. 4 - be cut directly into the base body 28, or can be embodied in the way previously described in connection with Fig. 2 together with a profiled body 04, wherein the profiled body 04 is non-detachably connected with the base body 28, advantageously by material-to-material contact, preferably by the use of a welding process, in particular by electron beam welding or laser welding, or by gluing. Regardless of the cutting of the bracing channel 06 in the base body 28, the covering 36 has a slit-shaped opening 11 toward the bracing channel 06 at all functionally required locations, wherein this opening 11 is cut, preferably by means of milling, into the covering 36, and preferably after the covering 36 has been applied to the surface 29 of the base body 28. Thus, the slit-shaped opening 11 is cut into the covering 36 at least as a part of a holding device, wherein a dressing 03, which can be placed on the surface 29, can be held by means of the holding device. Fig. 1 shows an example for the holding device, and reference is made to the respective description regarding details of the holding device. After the opening 11 has been cut into the covering 36, the bracing channel 06 can be formed, for example, in the base body 28, provided the opening 11 does not provide access to a bracing channel 06 already existing in the base body 28. The slit width S of the opening 11 lies within the range of a few millimeters, it preferably is 5 mm at most, in particular 1 mm to 3 mm (Fig. 1). The opening 11 can extend over the entire length of the barrel 02, or only over portions of this length.

If the bracing channel 06 is embodied in the manner previously described in connection with Fig. 2 in the base body 28, Figs. 4 and 5 show a special embodiment of the groove 31 which has been cut into the base body 28 and into which a profiled body 04 has been inserted. The groove 31 shown in Figs. 4 and 5 has an undercut in the base body 28. Such a shape of the groove 31 can be cut into a base body 29 by means of a T-shaped milling device. The advantage of the undercut lies in that a profiled body 04, which has been pushed into the base body 28 for example in the axial direction of the rotating body 01, is secured against unintentional removal from the groove 31 by the undercut in the radial direction of the rotating body 01.

It can moreover be seen in Fig. 4 that the covering 36 which closes the barrel 02 on its shell face 07 has an opening 11 with a reduced slit width S in comparison with the width W31 of the groove 31. Preferably the ratio of the width W31 of the groove 31 and the slit width S of the opening 11 lies between 5:1 and 15:1. As already mentioned, the slit-shaped opening 11 can be cut into the covering 36 after the covering 36 has been applied to the surface 29 of the base body 28. At this opening 11, the front edge 18 described in connection with Fig. 1, with the wall 12 extending from this edge 18 at the angle α in the direction toward the bracing channel 06, as well as the rear edge 19 with the wall 13 extending approximately vertically in the direction toward the bracing channel 06, are embodied or formed at this opening 11. Reference is made to Fig. 1 regarding further details of the design of this opening 11.

Furthermore, as a fourth embodiment - as can be seen in Fig. 5 - a flow channel 37, in particular a coolant channel 37, which is open in the direction toward the shell face 07 of the barrel 02, can be cut in the base body 28, which is then covered by the covering 36 applied to the surface 29 of the base body 28. Several flow channels 37 are advantageously provided along the circumference of the base body 28, which are preferably spaced apart equidistantly from each other and have a rectangular-shaped cross section, for example. Flow channels 37 designed in this way can be cut into the base body 28 by milling, for example by means of a disk milling cutter.

For controlling the temperature of the shell face 07, a liquid heat-carrying medium, for example water or oil, can flow through the flow channels 37. It is advantageous to line the flow channels 37 with a plastic material at least partially, i.e. at the contact points with the base body 28, in particular for thermally insulating the heat-carrying medium flowing through the flow channels 37 in respect to the base body 28. Because the flow channels 37 in this embodiment of the rotating body 01 can be arranged very closely to its shell face 07, it is possible to realize a very efficient temperature control, in particular if in addition the covering 36 is thin-walled, i.e. is made only a few millimeters thick, preferably at most 10 mm. As Fig. 5 shows, it is possible to form at least one bracing channel 06, as well as at least one flow channel 37, or several flow channels 37, in a barrel 02, or its base body 28, which preferably extend parallel with each other and in the

direction of the length of the barrel 02, or its base body 28. In the case of several flow channels 37, a welding zone 32 is preferably formed between each one of adjoining flow channels 37. A welding zone 32 is preferably also formed between a bracing channel 06 and an adjoining flow channel 37. It is advantageous to arrange the welding zones 32 in an equidistant manner along the circumference of the barrel 02. Because of the employment of welding methods with very narrowly restricted heating zones, the channels 06, 37 can be arranged closely next to each other at the circumference of the barrel 02. Welding methods with very narrowly restricted heating zones have the advantage that, in spite of these heat-producing production methods, the rotating body 01 remains practically free of warping. Even linings made of plastic applied in the flow channels 37 are not deformed by the supply of heat in the proposed preferred welding process.

The covering 36 is preferably embodied as a tube-shaped hollow body and can be pushed on the base body 28 for its assembly. However, the covering 36 can also be designed in the form of a shell, in particular in several sections, wherein several arc-shaped segments are applied in the direction of the circumference to the surface 29 of the base body 28. It is possible by means of the application of the covering 36, which is preferably made of a corrosion-proof and advantageously also wear-proof material, to create a finished shell face 07 by means of an advantageous manufacturing technique for the base body 28 of the rotating body 01, which for example is made of a less expensive, unalloyed and not corrosion-proof material.

Fig. 6 shows a portion of the rotating body 01 in a perspective plan view. At least one bracing channel 06, as well as several, preferably equidistantly spaced flow channels 37, for example in the form of rectangular grooves, have been formed axially in respect to the length of the rotating body 01 in the surface 07, 29 of its barrel 02 or base body 28, wherein the bracing channel 06 and the flow channels 37 on the surface 07, 29 of the barrel 02 or the base body 28 are each covered by a profiled body 04, which is preferably designed in the form of a strip (for the sake of clarity, only a portion of the flow channel 37 has been covered in Fig. 6). The profiled body 04, whose structural depth is less than the depth of the respective grooves substantially extending radially into the barrel 02 or base body 28, is preferably inserted with a positive connection into each one of the grooves and is connected in a material-to-material way, in particular by the employment of the electron beam welding method, with the barrel 02 or the base body 28. In the operational state of the rotating body 01, a heat-carrying medium flows through the grooves embodied as flow channels 37, which are hermetically closed toward the surface 07, 29 of the barrel 07 or the base body 28 by the profiled body 24, while the bracing channel 06 is equipped with a holding device as shown by way of example in Fig. 1 and provided, at least in part, with a slit-shaped opening 11 (not represented) toward the opening 07, 29 of the barrel 02 or of the base body 28, produced for example by a milling process. At least some of the flow channels 37 are connected with each other, preferably close to a front face of the

rotating body 01, for example by a groove 43 formed on the circumference of the barrel 02 or of the base body 28, wherein this groove 43 is also hermetically sealed, preferably by a profiled body 04, toward the surface 07, 29 of the barrel 02 or of the base body 28 wherein, however, this profiled body 04 is preferably designed in the shape of a cylinder ring, or a shell, or ring segments. One or several radial bores 44 can terminate as the inflow or outflow of the heat-carrying medium in this groove 43 formed on the circumference of the barrel 02 or the base body 28.

Following the insertion and fastening of the profiled bodies 04 in the respective grooves, the surface of the barrel 02 or of the base body 28 is preferably re-surfaced and/or ground and subsequently protected against corrosion. The wear resistance of the surface 07, 29 of the barrel 02 or the base body 28 can also be improved, for example by the application of a protective layer (as already described in connection with Fig. 3). With a barrel 02 constructed in layers, the corrosion-resistance and the wear resistance of the surface 29 of the base body 28 can preferably be improved in that a for example tube-shaped covering 36 constituting the shell face 07 of the rotating body 01 and made of a preferably corrosion-proof and wear-proof material, is for example pushed on the surface 29 of the base body 28 and is welded there, for example to strips 46 formed between adjoining flow channels 37, preferably by electron beam welding, so that the profiled bodies 04 inserted into the surface 29 of the base body 28 are also covered. To the extent that at least the profiled body 04 covering the bracing channel 06 is made of a corrosion-resistant material,

a dressing 03 arranged on the shell face 07 of the rotating body 01 comes exclusively into contact only with corrosion-proof surfaces.